

Experimental Determination of Mineral Stability with Applications to Refractory Cloud Formation in Exoplanetary Atmospheres and Brown Dwarfs

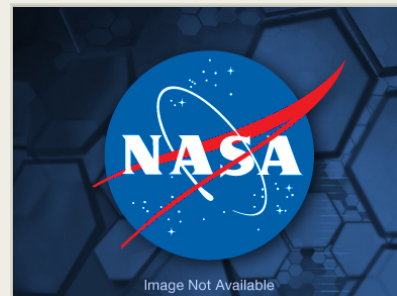
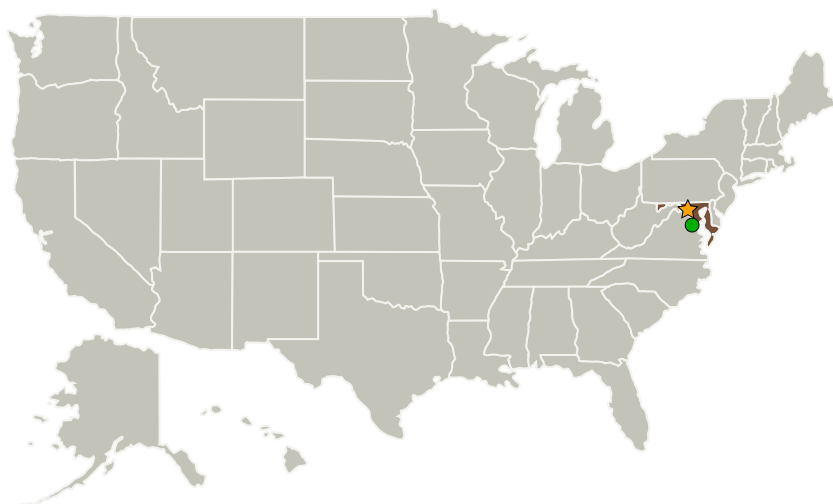
Completed Technology Project (2017 - 2020)



Project Introduction

We propose to carry out a series of laboratory measurements designed to support theoretical models of exoplanet atmospheres. As outlined in a community white paper (Fortney, et al.), current modeling efforts of the atmospheres of exoplanets is limited by our understanding of the properties of the constituent materials. By providing critical "ground truth" measurements in the laboratory, this effort will make it possible to refine and improve our understanding of the conditions present on distant worlds.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
●NASA Headquarters(HQ)	Supporting Organization	NASA Center	Washington, District of Columbia

Primary U.S. Work Locations

District of Columbia	Maryland
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Organizational Responsibility

Responsible Mission Directorate:

Science Mission Directorate (SMD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Astrophysics Research and Analysis

Project Management

Program Director:

Michael A Garcia

Program Manager:

Dominic J Benford

Principal Investigator:

Stephen A Rinehart

Co-Investigators:

Joseph A Nuth
Avram M Mandell
Hannah R Wakeford
Shawn D Domagal-goldman
David T Leisawitz
Erika N Kohler
Ravi Kumar Kopparapu

Technology Areas

Primary:

Continued on following page.

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Technology Areas (cont.)

- TX14 Thermal Management Systems
 - └ TX14.2 Thermal Control Components and Systems
 - └ TX14.2.8 Measurement and Control

Target Destination

Outside the Solar System